



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

different geological levels, Lower Cretaceous and Upper Jurassic, as proving their hypothesis that the pith of the Osmundaceae is of stelar origin and that the medullate forms are an ascending series, beginning with species which have a pith but no foliar gaps separating the collateral bundles, and ending with those in which the bundles are concentric and separated by widely patent gaps. So far as the testimony goes, which they have brought forward in their various memoirs, this hypothesis appears to bear a surprising resemblance to a confession of faith, since it is essentially the substance of things not seen but hoped for.—E. C. JEFFREY.

Parasites and xeno-parasites.—The extensive investigations of CANNON¹⁸ upon the root habits of desert plants has added *Orthocarpus purpurascens* and two species of *Krameria* to the list of semiparasitic plants. *Orthocarpus*,¹⁹ the first to be reported, is an annual of small size, united by its roots to a considerable variety of hosts, of which most are also annual in habit. *Krameria canescens* and *K. parvifolia*, two shrubby desert plants, were formerly taken to be autophytic, and the present study seems to show that they have not advanced far in parasitism. The seeds germinate readily irrespective of the presence or absence of the host plants, and the seedlings are capable of independent existence for an indefinite period, and yet when associated with possible hosts the root tips of *Krameria* organize haustoria penetrating the roots of the host and forming therewith close vascular connections. *Krameria parvifolia* has been found on *Parkinsonia microphylla* only, but *K. canescens* has a variety of hosts, being most frequently associated with *Covillea tridentata*. These parasites show but few of the atrophies or alterations usually accompanying dependent nutrition.

In making a study of the conditions which may have led to the development of parasitism, MACDOUGAL^{19, 20} has succeeded in uniting various plants, so that the one lived parasitically upon the other for more than two entire seasons. Various species of cactus were usually chosen as hosts, *Echinocactus* and the giant *Cereus* figuring most conspicuously in this rôle, while the "xeno-parasites" included the Mexican grape, agave, various cacti, and other succulent plants. After the union of the host and parasite was effected, there appeared in the development of the latter the atrophies and reductions characteristic of parasites. It appears that the relative acidity of the sap of the two plants has no part in determining their potentialities as parasite and host, but for the one to draw its nutrition from the other the latter must possess sap of a lower osmotic activity than the former, although not all plants thus related

¹⁸ MACDOUGAL, D. T., and CANNON, W. A., The conditions of parasitism in plants. Publication no. 129, Carnegie Institution of Washington. 1910.

¹⁹ CANNON, W. A., Parasitism of *Orthocarpus purpurascens*. Plant World 12: 259-261. 1909.

²⁰ MACDOUGAL, D. T., The making of parasites. Plant World 13: 207-214. 1910.

are capable of symbiosis, there being other unknown limiting factors.—GEO. D. FULLER.

Fertile and sterile strains of Hymenomycetes.—Miss WAKEFIELD²¹ has made a study of the conditions influencing the formation of fruit-bodies of *Schizophyllum commune* and *Stereum purpureum*, which were grown in pure cultures on bread and gelatin or agar media. The most interesting fact brought out by the work is that a disposition or tendency to form fruit-bodies is characteristic of certain strains, while others have a strong tendency to remain sterile. Of thirteen colonies of *Schizophyllum commune* obtained from single spores from various sources, two formed fruit-bodies readily, while the others remained sterile or showed only a slight tendency to fruit. When propagated by the transplanting of bits of mycelium to new nutrient media, the strains maintained their peculiar characteristics with regard to fruiting. *Stereum purpureum* behaved in a similar manner. Although the capacity for fruiting is thus a characteristic predetermined in the spore, the actual production of fruit-bodies is dependent upon certain internal conditions which were studied to some extent. In a moist atmosphere, depressing transpiration, only vegetative growth appears. Absence of light also is said to inhibit the formation of normal fruit-bodies in *Schizophyllum*. Certain other factors appear to act as direct "releasing stimuli." Thus the sudden withdrawal of nutriment leads to the production of fruit-bodies. Even some of the sterile strains show a tendency to fruit under proper conditions of transpiration and nutrition, indicating that the line between sterile and fertile strains may be after all largely a matter of response to environment.—H. HASSELBRING.

Sand dunes of New Zealand.—In preparation for efforts at dune reclamation, COCKAYNE²² has prepared a report upon the sand dunes of New Zealand. They cover an area of over 500 square miles, with a general height of 20–50 feet, but occasionally attaining a maximum height of 300 feet. A general summary of their geological character and history is followed by a consideration of the disturbing effect of man's burning and grazing operations. Many dunes that had long been entirely fixed have thus been revived by advancing civilization. A discussion of the ecological factors involved brings to light the interesting conclusion that the amount of precipitation affects the dune flora very little, areas with an annual rainfall of 100 inches having the same vegetation as others with only 25 inches. A very large number of cloudy and rainy days, however, does modify the xerophytic character of the dune plant associations. The sand-building and sand-collecting plants are

²¹ WAKEFIELD, MISS E., Ueber die Bedingungen der Fruchtkörperbildung, sowie das auftreten fertiler und steriler Stämme bei Hymenomyceten. Naturwiss. Zeitschr. Forst. u. Landwirtsch. 7:521–551. figs. 3. 1909.

²² COCKAYNE, L., Report on the sand dunes of New Zealand. Department of Lands, Wellington, N.Z. pp. 30. pls. 35. 1909.